

REMARKS

Status of Claims

Upon entry of the Amendment, which is respectfully requested, claim 5 will be pending in the present application.

Claims 1 and 3 are cancelled without prejudice or disclaimer.

Response to Rejection under 35 U.S.C. § 112

Claims 1, 3 and 5 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner asserts that the range 400Å to 1000Å, as recited in claims 1, 3 and 5 adds new matter, because the specification only describes a range of from 5Å to 1000Å.

The rejection of claims 1 and 3 is moot upon entry of the present Amendment.

Applicants respectfully traverse the rejection of claim 5 for the following reason.

The Example provided in the present specification clearly states that “*a magnesium deposit film was formed to a thickness of about 400Å*”. See page 8, lines 8-10 of the specification. The above mentioned thickness provides adequate support for the lower limit of the range recited in claim 5. That is, setting an upper or lower range limitation based on a specific working example in the specification complies with the written description requirement of §112, first paragraph. See MPEP § 2163.05 (III. RANGE LIMITATIONS) at 2100-183, 184 (Rev. 5 Aug. 2006) citing the decision of *In Re Wertheim*. Therefore, new matter has not been added.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the §112 rejection of claim 5.

Response to Rejection under 35 U.S.C. § 102

Claims 1, 3 and 5 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Yoshio et al. (JP06-65712).

The rejection of claims 1 and 3 is moot upon entry of the present Amendment. Applicants respectfully traverse the rejection of claim 5, at least for the following reasons.

Present claim 5 recites a method for forming a multilayer sheet comprising forming a pure magnesium film layer on a base layer by an evaporation method using magnesium containing impurities or a magnesium alloy, the magnesium containing impurities or the magnesium alloy containing at least one of Cu, Mn, Al, Si and Zn.

Applicants respectfully submit that a feature of the present invention is that magnesium is gasified dominantly to produce highly pure magnesium film when magnesium containing impurities or a magnesium alloy is used for the evaporation method. See page 6, lines 3-6 of the present specification. With this evaporation method, when the magnesium containing impurities or the magnesium alloy is used as film forming material and the container containing magnesium is evacuated to a degree of vacuum of about 10^{-3} mmHg by means of a vacuum pump such as a rotary pump, only the magnesium is instantaneously gasified at a heating temperature of about 300°C, that is by far lower than the melting point of magnesium, which is 650°C. Consequently, the formed magnesium film is strengthened and provides strong adhesive force relative to the base film.

In contrast, Yoshio discloses that a surface of a base which is made from a plastic film is pretreated in a low-temperature plasma atmosphere of carbon dioxide at a pressure below 6×10^{-1} Pa using a magnetron electrode and an evaporated metal film is formed continuously on the pretreated surface. As described at paragraph [0012] of Yoshio, preferably magnesium is used as the film forming material. More specifically, magnesium containing *few* impurities is used as the film forming material, and the purity of magnesium is not less than 99% or preferably 99.5%.

Therefore, although the present invention and Yoshio are both directed towards producing a highly pure magnesium film layer, the respective methods are different. Particularly, the use of magnesium containing impurities or a magnesium alloy for the evaporation method, as presently claimed, provides an advantage of a low melting point because magnesium alloys generally have a low melting point. Accordingly, a highly pure magnesium film can be formed at a lower temperature and a lower energy..

Additionally, if magnesium containing impurities or a magnesium alloy is used as film forming material, as shown in the Table at page 9 the specification, the steam permeability using Al_2O_3 or SiO_x as film forming material is 1.0 to 1.5 $\text{g/m}^2 \cdot \text{day}$ and the steam permeability using pure magnesium, CM10 alloy, or CM31 of the presently claimed invention is 1.0 to 3.4 $\text{g/m}^2 \cdot \text{day}$. However, the oxygen permeability using Al_2O_3 or SiO_x as the film forming material is 1.0 to 1.5 $\text{cc/m}^2 \cdot \text{day}$ and the oxygen permeability using pure magnesium (98% or 99.65), CM10 alloy, or CM31 of the presently claimed invention is 0.1 $\text{cc/m}^2 \cdot \text{day}$, that is far lower than that of the oxygen permeability using Al_2O_3 or SiO_x . Accordingly, a multilayer sheet prepared by the claimed method exhibits an excellent oxygen permeability in comparison with that of a multilayer sheet of aluminum oxide and silicon oxide.

In Yoshio, the surface of the base is pretreated in a low-temperature plasma atmosphere of carbon dioxide at a low pressure using the magnetron electrode, thereby forming a metal film having excellent oxygen permeability. However, a method for forming a multilayer sheet of the present invention does not require a pretreatment for a base layer, and can produce a highly pure magnesium film and one that has remarkably improved oxygen permeability as compared to that of Yoshio.

Therefore, even if high purity magnesium (*i.e.*, an expensive metal) employed in Yoshio is not used as film forming material, the present invention can produce a highly pure magnesium film. Furthermore, the method for forming the multilayer sheet of the present invention does not require pretreatment for the base layer, and can produce a magnesium metal film having even more excellent oxygen permeability ($0.1 \text{ cc/m}^2 \cdot \text{day}$) than that of Yoshio ($0.35\text{-}0.66 \text{ cc/m}^2 \cdot \text{day}$).

In view of the above, Applicants respectfully submit that claim 5 is patentably distinguishable over Yoshio, and therefore reconsideration and withdrawal of the §102 rejection is respectfully requested.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,



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